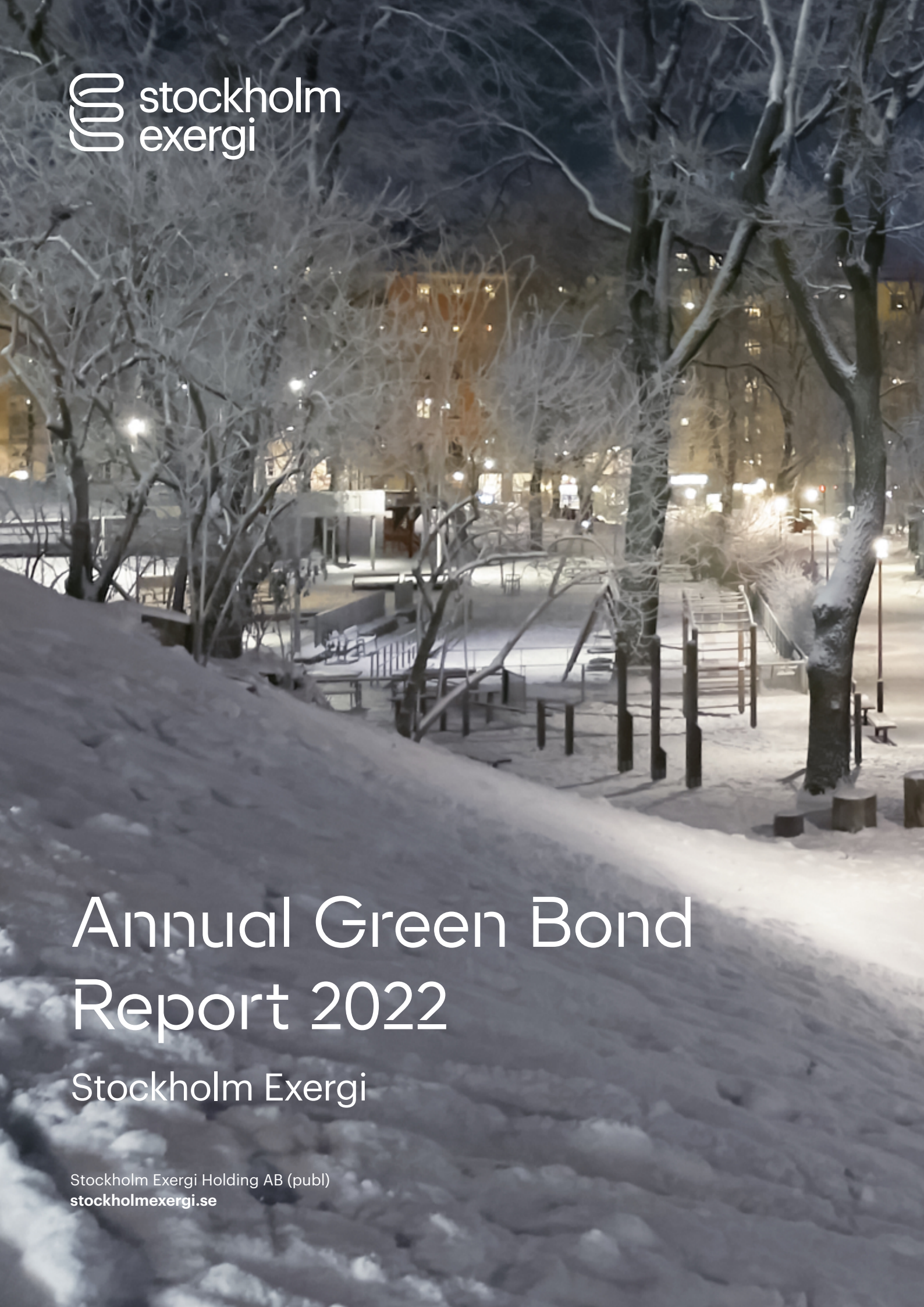


# Annual Green Bond Report 2022

## Stockholm Exergi

Stockholm Exergi Holding AB (publ)
**stockholmexergi.se**

# Continued development of the value of district heating

**Stockholm Exerigi's strategy includes** more efficient use of energy, reduced emissions and the production of permanent negative emissions. The year 2022 was strongly affected by the war in Ukraine in several ways. Not only has the market for biofuels been affected, also the need for electrical energy and capacity has been accentuated. District heating's ability to relieve the electricity grid and supply electricity through cogeneration of heat and power is very valuable. Stockholm Exergi's oil-fired combined heat and power plant (CHP1) could add significant electrical power to the local grid in Stockholm.

Our projects to convert oil-fired units to be able to instead use bio-oils have progressed according to plan. We have analyzed how current environmental targets will affect the composition of the residual waste and our collaborated with waste companies and district heating customers regarding increased sorting and recycling of plastic continues.

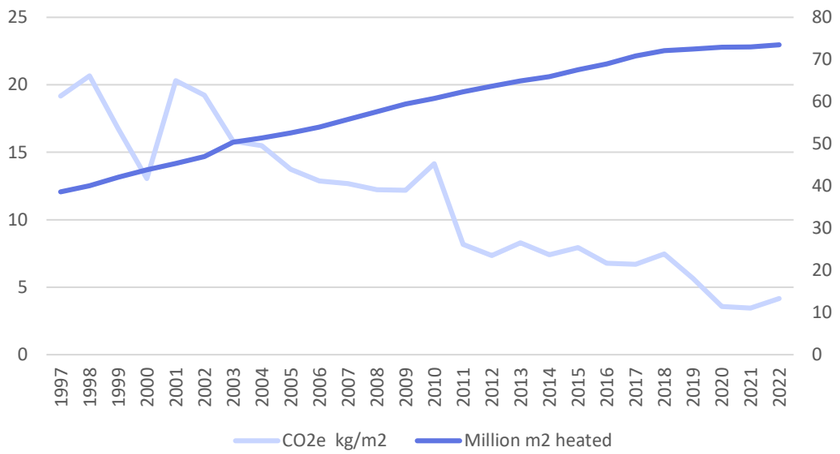
The Bio-CCS project is getting closer to an investment decision as an application for an environmental permit has been completed and our plan is to take the investment decision in the spring of 2024. Stockholm Exergi's target is to become a leading European carbon dioxide capturer for permanent negative carbon dioxide removals by 2026.

The work to implement digital solutions for optimizing the heat demand continues and is currently covering over 10,000 homes. The use of district heating can thus be increasingly optimized.

## About district heating in Stockholm

Over the past 20 years, the heated area connected to district heating in Stockholm has more than doubled. At the same time, total emissions from district heating have decreased by more than 55 percent, meaning that the emissions per heated property area have decreased by more than 78 percent. This sharp decrease has been achieved together with property owners and businesses' own energy efficiency improvements and replacements of fossil based heat production.

### $CO_2$-emissions from district heating per heated square meter





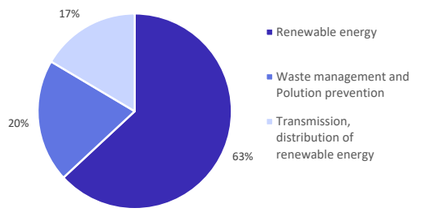

# Impact reporting for the Green Bond Framework 2019

**In August 2019, Stockholm Exergi Holding AB** (publ) updated its Green Bond Framework and received a second opinion from the Norwegian climate research institute CICERO Shades of Green. With a CICERO Dark Green shading and an excellent governance assessment the 2019 Green Bond Framework achieved the highest possible rating outcome. Both the Green Bond Framework and the second opinion from CICERO can be found **here (link)**. In September 2019, Stockholm Exergi Holding AB (publ) issued its first green bonds under the framework, followed by subsequent issuances in September 2020, April 2021, and May 2022. As per December 31st, 2022, Stockholm Exergi had in total issued 10 green bonds with a total nominal amount of 6 700 MSEK and maturities between Sep 2023 and May 2029. All of the proceeds of 6 700 MSEK have been allocated by Stockholm Exergi's Green Bond Committee to the three different green project categories and most of the proceeds (63%) were allocated to projects within the renewable energy category. More than half of the proceeds (51%) have been allocated to new projects whereas 49% went to refinancing of older eligible projects. The charts to the right illustrate the allocation of proceeds to the different green project categories and between new financing and refinancing. The use of proceeds from green bonds and allocation to eligible green investments outlined in this report is as per cut-off date December 31st, 2022, and the impact reporting is based on calendar year 2022, where relevant.

### Green Project Portfolio distribution based on disbursed amounts

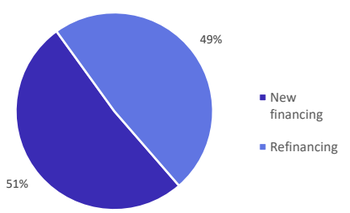
The proceeds of the Green Bonds will finance or refinance, in whole or in part, investments undertaken to promote the transition towards low-carbon and resource-efficient growth ("Green Projects") under the following categories:

- Renewable energy
- Waste management and Pollution prevention
- Transmission, distribution of renewable energy




### Distribution between new financing and refinancing based on disbursed amounts

New financing is defined as Green Projects under construction or Green Projects taken into operation less than 12 months prior to the approval by Stockholm Exergi's Green Bond Committee. Refinancing is defined as financing for Green Projects taken into operation more than 12 months prior to the Green Bond Committee's approval.



# Projects financed under the 2019 Green Bond Framework

**Under the 2019 Green Bond Framework,** Stockholm Exergi issued green bonds with a total nominal value of SEK 6 700 MSEK in September 2019, September 2020, April 2021, and May 2022. All of the proceeds have been allocated by the Green Bond Committee to the eligible projects presented in the table below.

The total investment amount for the chosen eligible projects amounts to over 10 000 MSEK and the share of the respective project that is financed by bonds under the 2019 Green Bond framework is stated in the "Outstanding disbursed green bond amounts" column. If not otherwise mentioned, all amounts refer to new financing.

| Sustainability Performance Goal | Green Project Category | Project | Description | Total Investment MSEK | Total impact for investment | Outstandning disbursed green bond amounts allocated to project 2019-2022 MSEK | Impact for disbursed green bonds amounts | Impact tonnes $CO_2e$ per MSEK |
|---|---|---|---|---|---|---|---|---|
|   | Renewable Energy | Biomass (CHP8) Värtan, completed 2016.<br><br>Financing of new infrastructure projects associated with CHP8. | Refinancing of new capacity for production of renewable energy. CHP8 has produced 1 770 GWh renewable heat and 610 GWh renewable electricity during 2022. Projects have been conducted to support and improve the production facility. | 5 868 | Actual savings:<br><br>337 090 tonnes $CO_2e$ | 3253<br><br>(of which 2028 MSEK is refinancing) | Actual savings:<br><br>186 870 tonnes $CO_2e$ | 57 |
| | | CHP1 Värtan | Renovation of the CHP1 plant in Värtaverket including conversion to biofuels. A measure to secure sufficient electricity capacity in order to enable society's necessary transformation from fossil fuel based road traffic to electric. | N/A | N/A | 596 | Expected emission reduction:<br><br>8 080 tonnes $CO_2e$ | N/A |
| | | G3 Värtan | Renovation of Gas turbine 3 in Värtaverket including conversion to biofuels. A measure to secure sufficient electricity capacity in order to enable society's necessary transformation from fossil fuel based road traffic to electric road traffic. | N/A | N/A | 381 | Expected emission reduction:<br><br>3 300 tonnes $CO_2e$ | N/A |
|  | Waste management and pollution prevention | CHP, Brista 2, completed 2014 | CHP plant for waste incineration. Brista 2 has produced 461 GWh heat and 122 GWh electricity during 2022, thereby reducing the use of primary energy resources and emissions from landfill. | 2 233 | Actual savings:<br><br>19 610 tonnes $CO_2e$ | 458<br><br>(of which 458 MSEK is refinancing) | Actual savings:<br><br>4 020 tonnes $CO_2e$ | 8,8 |
| | | P8 Högdalen, completed 2022 | Construction of a new CHP plant for waste incineration in Högdalen, replacing boiler 1 and 2. Emission reductions are achieved by a new flue gas cleaning system.<br><br>The plant is in operation since the begining of 2021. | 793 | Actual emission reductions:<br><br>- NOx 68 tonnes<br>- $NH_3$ 14 tonnes<br><br>Estimated reduction of the use of ammoniac: 500 $m^3$ per year | 782 | Actual emission reductions:<br><br>- NOx 67 tonnes<br>- $NH_3$ 14 tonnes<br><br>Estimated reduction of the use of ammoniac: 493 $m^3$ per year | N/A |
| | | Carbon sinks, BioCCS Stockholm | Project for building Bio-carbon capture system at CHP8 in Värtaverket. The plant is planning to achieve a permanent removal of 800 000 tonnes of $CO_2$ per year. | N/A | N/A | 124 | N/A | N/A |

# Projects financed under the 2019 Green Bond Framework

| Sustainability Performance Goal | Green Project Category | Project | Description | Total Investment MSEK | Total impact for investment | Outstandning disbursed green bond amounts allocated to project 2019-2021 | Impact for disbursed green bonds amounts | Impact tonnes $CO_2e$ per MSEK |
|---|---|---|---|---|---|---|---|---|
|  | Transmission, distribution of renewable energy, energy recovery and energy storage | Investments related to “Smarta Fastigheter” (Smart Buildings) and DSM (Demand Side Management).<br><br>Ongoing with start 2019. | Investments in hardware and infrastructure enabling reduced carbon emissions in production mix and enabling customers to reduce energy consumption further.<br><br>This technology has the potential of reducing $CO_2$ emissions with approximately 3 450 tonnes in total from year 2021 to 2025. | 154 | Actual savings:<br><br>440 tonnes $CO_2e$<br>7160 MWh heat | 154 | Actual savings:<br><br>440 tonnes $CO_2e$<br>7160 MWh heat | 2,9 |
| | | Sum of distribution projects enabling the connection of new end-users.<br><br>Investments during 2022. | These distribution projects will enable an increase of 30 GWh distributed heat per year and an avoidance of 10 540 tonnes $CO_2$ emissions in total from year 2022 to 2025. | 803 | Actual savings:<br><br>3 230 tonnes $CO_2e$ | 803 | Actual savings:<br><br>3 230 tonnes $CO_2e$ | 4 |
| | | DH network connection to Nacka (Nackaledning) | New DH network connection to Nacka municipality will enable an increase of 200 000 MWh distributed heat per year. | 198 | Expected emission reduction:<br><br>141 120 tonnes $CO_2e$ | 85 | Expected emission reduction:<br><br>60 580 tonnes $CO_2e$ | N/A |
| | | DH network connection (Sammanbindningsleding) | Project planning for the integration of the Northern and Central/South DH networks. The project will enable further developement of the distributon system and thus allow an increase of environmental beneficial DH production. | N/A | N/A | 64 | N/A | N/A |
| **TOTAL** | | | | | | **6 700** | | **29** |

# Reporting methodology

## Biomass (CHP8) Värtan, KVV1, G3

To calculate the actual annual avoided climate impact of the project, the completed project is compared to a baseline in which the investment does not exist. The impact of heat and electricity production are added. The baseline used for heat production is Stockholm Exergi's district heating system's annual impact before project implementation. The baseline used for electricity is the European mainland mix including Norway, 315 g $CO_2$ per kWh according to Nordic Position Paper on Green Bonds Impact Reporting.

Actual annual avoided climate impact ($CO_2e$) of the project = actual annual output of heating for the project * (baseline emission factor for heat produktion - project emission factor) + actual annual output of electricity * (baseline emissions factor for electricity - project emission factor).

## CHP Brista 2

Same principle as above with the baseline emissions factor for heating estimated from national Swedish average for avoided alternative heating and from avoided alternative waste treatment, 158 g $CO_2$ per kWh according to Nordic Position Paper on Green Bonds Impact Reporting.

Actual annual avoided climate impact ($CO_2e$) of the project = actual annual output of heating for the project * (baseline emission factor for heat produktion - project emission factor) + actual annual output of electricity * (baseline emissions factor for electricity - project emission factor).

## P8 Högdalen

To calculate the emission reductions related to the project, the expected improved perfomance of P8's new flue gas treatment system is compared to the emissions before project implementation. The same comparison is made concerning the use of ammoniac for NOx-reduction.

## Smart buildings

The $CO_2$ emissions savings regarding smart buildings and Demand Side Management are based on reduced customer energy consumption and Stockholm Exergi's district heating system annual environmental impact. The annual environmental impact of optimized production is estimated to 0,07 tonnes $CO_2$ savings per customer which is itself based on how the production fuel mix is optimized.

## Sum of distribution projects enabling the connection of new end-users, Nackaledning

To calculate the actual annual avoided climate impact of the projects, the sum of the completed projects is compared to a reference scenario in which the investment does not exist. The baseline emissions factor for heating is estimated from national Swedish average for avoided alternative heating and from avoided alternative waste treatment, 158 g $CO_2$ per kWh according to Nordic Position Paper on Green Bonds Impact Reporting.

Actual annual avoided climate impact ($CO_2e$) of the projects = actual annual output of heating to new end users * (baseline emissions factor for heating - Stockholm Exergi's district heating system emission factor).



# Auditor's Limited Assurance Report on Stockholm Exergi's Green Bond Report

To Stockholm Exergi Holding AB (publ), corporate identity number 556040-6034.

## Introduction

We have been engaged by Stockholm Exergi Holding AB (publ) ("Stockholm Exergi") to undertake a limited assurance engagement of the Impact reporting for the Green Bond Framework 2019 as of 31 December 2022 as set out on page 3-6 in this document ("the Reporting").

## Responsibilities of Management

Stockholm Exergi Management is responsible for the preparation of the Reporting in accordance with the applicable criteria, as explained in the Stockholm Exergi Green Bond Framework 2019 (available at https://www.stockholmexergi.se/om-stockholm-exergi/finansiell-information/finansiering/) as well as the accounting and calculation principles that the Company has developed. This responsibility also includes the internal control relevant to the preparation of the Reporting that is free from material misstatements, whether due to fraud or error.

## Responsibilities of the auditor

Our responsibility is to express a conclusion on the Reporting based on the limited assurance procedures we have performed. Our engagement is limited to historical information presented and does therefore not cover future-oriented information.

We conducted our limited assurance engagement in accordance with ISAE 3000 (revised) Assurance Engagements Other than Audits or Reviews of Historical Financial Information. A limited assurance engagement consists of making inquiries, primarily of persons responsible for the preparation of the Reporting, and applying analytical and other limited assurance procedures. The procedures performed in a limited assurance engagement vary in nature from, and are less in extent than for, a reasonable assurance engagement conducted in accordance with International Standards on Auditing and other generally accepted auditing standards in Sweden.

The firm applies International Standard on Quality Management 1, which requires the firm to design, implement and operate a system of quality management including policies or procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements. We are independent of Stockholm Exergi in accordance with professional ethics for accountants in Sweden and have otherwise fulfilled our ethical responsibilities in accordance with these requirements.

The procedures performed consequently do not enable us to obtain assurance that we would become aware of all significant matters that might be identified in a reasonable assurance engagement. Accordingly, the conclusion of the procedures performed do not express a reasonable assurance conclusion.

Our procedures are based on the criteria defined by Stockholm Exergi Management as described above. We consider these criteria suitable for the preparation of the Reporting.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion below.

## Conclusion

Based on the limited assurance procedures we have performed, nothing has come to our attention that causes us to believe that the Reporting as of 31 December 2022, is not prepared, in all material respects, in accordance with the applicable criteria, as explained in the Stockholm Exergi Green Bond Framework 2019.

Stockholm 31 March 2023
Deloitte AB

Daniel Wassberg
Authorized Public Accountant

Adrian Fintling
Expert Member of FAR